

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A computer system comprising:
 - a chassis having an air inlet and an air outlet;
 - an air mover disposed within the chassis and associated with either the air inlet or the air outlet and establishing a forced air flow path within the chassis;
 - a first computer module compartment positioned in the chassis and in the forced air flow path so that heat from the first compartment is may be transferred to the forced air flow;
 - a first air-to-fluid heat exchanger having a plurality of heat transfer surfaces therein, and positioned in the chassis between the air inlet and the first compartment in the forced air flow path such that the forced air flows through the heat exchanger and across the heat transfer surfaces and thereby removes a portion of the heat from the air;
 - a second computer module compartment positioned in the chassis and in the forced air flow path;
 - ~~an~~ a second air-to-fluid heat exchanger having a plurality of heat transfer surfaces therein, and positioned in the chassis between the first and second compartments in the forced air flow path such that the forced air flows through the second heat exchanger and across the heat transfer surfaces and thereby removes a portion of the heat ~~therefrom~~ from the air.
2. (Canceled).
3. (Currently amended) The computer system of claim 1 wherein ~~the~~ each heat exchanger includes at least one internal fluid passage configured to carry a working fluid.
4. (Currently amended) The computer system of claim 1 wherein ~~the~~ each heat exchanger

includes at least one internal fluid passage configured to carry a working fluid having a boiling point in the heat exchanger between about 45° F. and about 75° F.

5. – 6. (Canceled).

7. (Currently amended) The computer system of claim 1 ~~wherein the heat exchanger is a first heat exchanger, and wherein the computer system further comprises~~ further comprising:

a third computer module compartment positioned in the chassis and in the air flow path; and
a ~~second~~ third heat exchanger positioned in the chassis and in the air flow path, wherein the ~~second~~ third heat exchanger is positioned at least partially downstream of the second computer module compartment and at least partially upstream of the third computer module compartment.

8. (Currently amended) The computer system of claim 1 ~~wherein the heat exchanger is a first heat exchanger, and wherein the computer system further comprises:~~

~~a third computer module compartment positioned in the chassis and in the air flow path; and
a second heat exchanger positioned in the chassis and in the air flow path, wherein the second heat exchanger is positioned at least partially downstream of the second computer module compartment and at least partially upstream of the third computer module compartment, wherein the first, second, and third computer module compartments, and the first and second heat exchangers, are arranged vertically in the chassis~~ the air flow path is substantially vertical.

9. (Currently amended) The computer system of claim 1 wherein the first heat exchanger, the first computer module compartment, the second heat exchanger and the second computer module compartment, and the heat exchanger are arranged vertically one on top of the other in the chassis.

10. (Currently amended) The computer system of ~~claim 1~~ claim 9 wherein the first computer module compartment is configured to hold at least a first computer module oriented edgewise with respect to the air flow path.

11. (Currently amended) The computer system of ~~claim 1~~ claim 9 wherein the first computer module compartment is configured to hold a plurality of computer modules oriented edgewise with respect to the air flow path.

12. (Currently amended) The computer system of claim 1 wherein the first computer module compartment is configured to hold at least a first computer module oriented edgewise with respect to the air flow path toward a first side of the second heat exchanger, and wherein the second computer module compartment is configured to hold at least a second computer module oriented edgewise with respect to the air flow path ~~toward~~ from a second side of the second heat exchanger opposite to the first side of the second heat exchanger.

13. (Currently amended) The computer system of claim 1, further comprising:

- a first computer module carried by the first computer module compartment, wherein the first computer module includes at least a first computer processor; and
- a second computer module carried by the second computer module compartment, wherein the second computer module includes at least a second computer processor.

14. – 18. (Canceled))

19. (Currently amended) The computer system of ~~claim 16~~ claim 4 ~~wherein the heat exchanger is a first heat exchanger, and wherein the computer system further comprises~~ further comprising:

- a third computer module compartment positioned in the air flow path in the chassis; and
- a ~~second~~ third heat exchanger positioned at least partially between the second and third computer module compartments in the air flow path in the chassis, the ~~second~~ third heat

exchanger including at least one internal fluid passage configured to carry a working fluid having a boiling point in the second heat exchanger between about 45° F. and about 75° F.

20. – 21. (Canceled).

22. (Currently amended) The computer system of ~~claim 16~~ claim 3, ~~further comprising the working fluid~~, wherein the working fluid is carried by the internal fluid passage of the heat ~~exchanger~~ exchangers, and wherein a first portion of the working fluid is in a liquid state and a second portion of the working fluid is in a gaseous state in the heat ~~exchanger~~ exchangers.

23. (Currently amended) The computer system of claim 22 ~~claim 16~~, ~~further comprising the working fluid~~, wherein the working fluid is a refrigerant.

24. (Currently amended) The computer system of claim 22 ~~claim 16~~, ~~further comprising the working fluid~~, wherein the working fluid is a refrigerant having a boiling point in the heat exchanger between about 50° F. and about 65° F.

25. (Canceled).

26. (Currently amended) A computer system comprising:

a chassis;

an air mover coupled to the chassis to induce a flow of air along a flow path within the chassis;

a first computer module compartment positioned in the chassis and in the air flow path;

a first air-to-liquid fluid heat exchanger positioned in the chassis and in the air flow path, wherein the first heat exchanger includes at least one internal fluid passage configured to carry a working fluid that absorbs heat from the air flow path; and

a ~~second~~ heat exchanger positioned external to and spaced apart from the chassis and in fluid communication with the first heat exchanger, wherein the second heat exchanger is configured to cool the working fluid.

27. (Original) The computer system of claim 26, further comprising the working fluid, wherein the working fluid has a boiling point in the first heat exchanger between about 45° F. and about 75° F.

28. (Original) The computer system of claim 26, further comprising a plurality of computer modules held in the first computer module compartment.

29. (Original) The computer system of claim 26, further comprising a second computer module compartment positioned in the chassis and in the air flow path, wherein the first heat exchanger is positioned at least partially between the first and second computer module compartments.

30. (Canceled).

31. (Currently amended) The computer system of claim 26, further comprising a controller operably coupled to the ~~second~~ external heat exchanger to maintain the working fluid in phase transition within the first heat exchanger.

32. (Original) The computer system of claim 26 wherein the first computer module compartment is configured to hold a plurality of computer modules oriented edgewise with respect to the air flow path.

33. (Currently amended) ~~A computer system comprising: The system of claim 26~~
~~a chassis having wherein the chassis has an air inlet and an air outlet;~~
~~an air mover positioned in flow communication with the chassis, wherein the air mover is~~

~~configured to move air along a forced air flow path through at least a portion of the chassis;~~
~~a first computer module compartment positioned in the air flow path in the chassis;~~
a first plurality of computer modules held in the first computer module compartment at least partially in the air flow path;
a second computer module compartment positioned in the air flow path in the chassis and spaced apart from the first computer module compartment;
a second plurality of computer modules held in the second computer module compartment at least partially in the air flow path; and
~~an a second~~ air-to-fluid heat exchanger positioned in the air flow path in the chassis, wherein the second heat exchanger is positioned at least partially downstream of the first computer module compartment and at least partially upstream of the second computer module compartment, and wherein the second heat exchanger includes at least one opening through which the air mover moves air to transfer heat ~~thereto~~ from the air to the fluid.

34. (Currently amended) The computer system of claim 33 wherein the air mover is positioned toward an upper portion of the chassis and configured to draw air upward through the chassis and past the first computer module compartment, the first and second heat exchanger, and the second computer module compartment.

35. (Withdrawn) The computer system of claim 33 wherein the air mover is positioned toward a bottom portion of the chassis and configured to drive air through the chassis and past the first computer module compartment, the heat exchanger, and the second computer module compartment.

36. (Original) The computer system of claim 33 wherein the air mover is carried by the chassis.

37. (Currently amended) The computer system of claim 33 ~~wherein the heat exchanger is a first heat exchanger, and wherein the computer system further comprises~~ further comprising:

- a third computer module compartment positioned in the air flow path in the chassis and spaced apart from the second computer module compartment;
- a third plurality of computer modules held in the third computer module compartment at least partially in the air flow path; and
- a ~~second~~ third heat exchanger positioned in the air flow path in the chassis, wherein the ~~second~~ third heat exchanger is positioned at least partially downstream of the second computer module compartment and at least partially upstream of the third computer module compartment, and wherein the third heat exchanger includes at least one opening through which the air mover moves air.

38. (Currently amended) The computer system of claim 33 wherein the air mover, the ~~first~~ computer module ~~compartment~~ compartments, the ~~second computer module compartment~~, and the heat ~~exchanger~~ exchangers are arranged vertically with respect to the chassis.

39. (Currently amended) The computer system of claim 33 wherein the first computer module compartment is configured to hold the first plurality of computer modules in edgewise orientation with respect to the air flow path toward a first side of the first heat exchanger, and wherein the second computer module compartment is configured to hold the second plurality of computer modules in an edgewise orientation with respect to the air flow path ~~toward from~~ a second side of the first heat exchanger opposite to the first side of the first heat exchanger.

40. (Original) The computer system of claim 33 wherein each of the first plurality of computer modules is individually carried by the first computer module compartment, wherein each of the first plurality of computer modules includes at least a first computer processor, wherein each of the second plurality of computer modules is individually carried by the second computer module compartment, and wherein each of the second plurality of computer modules includes at least a

second computer processor.

41. (Currently amended) The computer system of claim 33 wherein the heat exchangers include exchanger includes at least one internal fluid passage configured to carry a working fluid.

42. (Currently amended) The computer system of claim 33 wherein the heat exchangers include ~~exchanger includes~~ at least one internal fluid passage configured to carry a working fluid having a boiling point in the heat exchanger between about 45° F. and about 75° F.

43. (Original) The computer system of claim 33 wherein each computer module of the first and second pluralities of computer modules includes at least one processor.

44. – 50. (Canceled).

51. (Previously presented) A method for dissipating heat generated by a computer module in a chassis, comprising:

placing an air-to-fluid heat exchanger in the chassis;

forcing air past ~~the a first~~ computer module in the chassis to transfer heat from the computer module to the air;

moving a ~~working-fluid~~ first portion of a refrigerant received from a refrigerant source through an internal passage of ~~the a first~~ air-to-fluid heat exchanger having a first internal passage;

transferring heat from the-at least a portion of the heated air to the heat exchanger; and

boiling at least a portion of the ~~working-fluid~~ refrigerant in the internal passage-;

after moving the portion of air through the first heat exchanger, moving the portion of air past a second computer module in the chassis to transfer heat from the second computer module to the portion of air;

moving a second portion of the refrigerant received from the refrigerant source through a second internal passage of a second heat exchanger positioned at least proximate to the

second computer module in the chassis; and
moving the portion of air through the second heat exchanger to transfer heat from the portion
of air to the second heat exchanger and boil at least a portion of the refrigerant in the
second internal passage.

52. (Currently amended) The method of claim 51 wherein ~~moving a working fluid through an internal passage of a heat exchanger includes moving a~~ the working fluid having has a boiling point between about 45° F. and about 75° F.

53. (Currently amended) The method of claim 51 wherein ~~moving a working fluid through an internal passage of a heat exchanger includes moving a~~ the working fluid having has a boiling point between about 50° F. and about 65° F.

54. (Previously presented) The method of claim 51 wherein the computer module is a first computer module, and wherein the method further comprises, after moving the portion of air through the heat exchanger, moving the portion of air past a second computer module in the chassis to transfer heat from the second computer module to the portion of air.

55. – 56. (Canceled).

57. (Currently amended) A method for dissipating heat generated ~~by a computer module~~ in a chassis, comprising:

providing a chassis having an air inlet, an air outlet and at least one heat-generating object
therein;

placing an air-to-fluid heat exchanger in the chassis;

~~forcing air past the computer module in the chassis to transfer heat from the computer~~
~~module to the air;~~

moving a working fluid through an internal passage of the heat exchanger;

~~moving at least a the portion of the heated air through the air inlet and through the heat exchanger to transfer heat from the portion of air to the working fluid; and~~
controlling the working fluid to maintain the working fluid at least proximate to the phase transition state while flowing through the internal passage; ~~and~~
moving at least a portion of the cooled air across the heat generating object to transfer heat to the air.

58. (Currently amended) The method of claim 57 wherein ~~moving a working fluid through an internal passage of a heat exchanger includes moving a~~ the working fluid ~~having~~ has a boiling point between about 45° F. and about 75° F.

59. (Currently amended) The method of claim 57 wherein ~~moving a working fluid through an internal passage of a heat exchanger includes moving a~~ the working fluid ~~having~~ has a boiling point between about 50° F. and about 65° F.

60. (Currently amended) The method of claim 57 wherein the ~~computer module~~ heat-generating object is a first computer module, and wherein the method further comprises, after moving the portion of air ~~across the computer module through the heat exchanger~~, moving the portion of air past a second ~~computer module~~ heat exchanger in the chassis to transfer heat from the ~~second computer module to the~~ portion of air.

61. (Original) The method of claim 57 wherein controlling the working fluid to maintain the working fluid at least proximate to the phase transition state includes controlling the pressure of the working fluid.

62. – 71. (Canceled).

72. (New) A method for dissipating heat generated in a chassis, comprising:

providing a first electronics module disposed the chassis;
locating a first air-to-fluid heat exchanger in the chassis adjacent the first module;
forcing air past the first module in the chassis to transfer heat from the first module to the air;
providing a source of a working fluid;
moving at least a portion of the working fluid through an internal passage of the first air-to-fluid heat exchanger;
transferring heat from at least a portion of the heated air to the working fluid in the first heat exchanger;
boiling at least a portion of the working fluid in the internal passage of the first heat exchanger;
providing a second electronics module disposed the chassis;
locating a second air-to-fluid heat exchanger in the chassis adjacent the second module;
forcing air past the second module in the chassis to transfer heat from the second module to the air;
moving another portion of the working fluid through an internal passage of the second air-to-fluid heat exchanger;
transferring heat from at least a portion of the heated air to the second heat exchanger; and
boiling at least a portion of the working fluid in the internal passage of the second heat exchanger; and
transferring heat from the working fluid to a heat exchanger spaced apart from the chassis.